

1 1. A method comprising:
2 forming a semiconductor substrate having a first
3 exposed polymerizable dielectric surface and a second
4 exposed unpolymerizable surface; and
5 causing polymerization to occur selectively on
6 the dielectric surface while avoiding polymerization on the
7 unpolymerizable surface to form a polymer that selectively
8 covers the dielectric surface.

1 2. The method of claim 1 wherein forming a
2 semiconductor substrate includes forming a semiconductor
3 substrate having a second exposed unpolymerizable surface
4 formed of metal.

1 3. The method of claim 1 wherein forming a
2 semiconductor substrate having an unpolymerizable surface
3 includes forming a copper surface.

1 4. The method of claim 2 wherein forming a
2 semiconductor substrate having a first exposed dielectric
3 surface includes forming a surface of interlevel
4 dielectric.

1 5. The method of claim 1 wherein causing
2 polymerization to occur selectively includes surface
3 grafting polymers to the polymerizable surface.

1 6. The method of claim 1 wherein causing
2 polymerization to occur includes initiating photo induced
3 graft polymerization.

1 7. The method of claim 6 including coating said
2 substrate with a substance to induce photo surface grafting
3 and polymerization.

1 8. The method of claim 7 including coating said
2 surface with benzophenone and irradiating using ultraviolet
3 radiation.

1 9. The method of claim 7 including forming a
2 benzophenone derivative attached to said polymerizable
3 surface through a hydrogen moiety.

1 10. The method of claim 1 including forming a copper
2 layer over said conductive polymer.

1 11. A semiconductor structure comprising:
2 a surface including an exposed polymerizable
3 dielectric and an exposed unpolymerizable region; and
4 a polymer selectively attached to said
5 polymerizable dielectric to form a surface coating that
6 selectively covers said polymerizable dielectric.

1 12. The structure of claim 11 wherein said
2 unpolymerizable region is copper.

1 13. The structure of claim 11 wherein said polymer is
2 a diffusion barrier and a copper layer is formed over said
3 polymer.

1 14. The structure of claim 11 wherein said polymer is
2 a seed layer and a copper layer is formed over said
3 polymer.

1 15. The structure of claim 11 wherein said polymer is
2 conductive.

1 16. The structure of claim 15 wherein said polymer is
2 an oligomer.

1 17. The structure of claim 16 wherein said polymer is
2 end-functionalized with vinyl groups.

1 18. The structure of claim 11 wherein said polymer
2 acts as a copper diffusion barrier.

1 19. The structure of claim 11 wherein said polymer
2 acts as a copper seed layer.

1 20. The structure of claim 11 wherein said polymer
2 activates electroless deposition of a copper diffusion
3 barrier.

1 21. The structure of claim 1 wherein said polymer is
2 a monomer including palladium.

1 22. A method comprising:
2 forming a semiconductor substrate having a
3 dielectric surface and an exposed metal surface;
4 causing polymerization to occur selectively on
5 the dielectric surface while avoiding polymerization on the
6 metal surface to form a polymer that selectively covers the
7 dielectric surface; and
8 using the polymer to form a copper diffusion
9 barrier.

1 23. The method of claim 21 including forming a
2 monomer that activates electroless deposition of a copper
3 diffusion barrier.

1 24. A method comprising:
2 forming a semiconductor substrate having a
3 dielectric surface and a metallic surface;
4 causing polymerization to occur selectively on
5 the dielectric surface while avoiding polymerization on the

6 metal surface to form a polymer that selectively covers the
7 dielectric surface; and
8 forming a copper seed layer using said polymer.

1 25. The method of claim 24 including forming said
2 polymer using oligomers end-functionalized with vinyl
3 groups.